CLAIMS

1. A gear product having a plurality of tooth formed at a predetermined pitch on an outer peripheral surface of a disc-form body thereof, wherein

a crowning is formed at least at one end part of a tooth surface of at least one of gears engaging each other.

2. A gear product according to claim 1, wherein

said crowning is formed at least at one end part of an upper side tooth surface or a lower side tooth surface of at least one or the other gear.

3. A gear product according to claim 1, wherein

said crowning is formed at two end parts arbitrarily selected from four end parts of both of an upper side tooth surface and a lower side tooth surface of one or the other gear.

4. A gear product according to claim 1, wherein

said crowning is formed at three end parts arbitrarily selected from four end parts of both of an upper side tooth surface and a lower side tooth surface of one or the other gear.

5. A gear product according to claim 1, wherein

said crowning is formed at an upper end part of an upper

side tooth surface of one gear and

said crowning is formed at said upper end part and a lower end part of said upper side tooth surface and a lower end part of a lower side tooth surface of the other gear.

6. A gear product according to claim 1, wherein

said crowning is formed at upper and lower end parts of an upper side tooth surface and an upper end part of a lower side tooth surface of one gear, and

said crowning is formed at said upper and lower end parts of said upper side tooth surface and a lower end part of said lower side tooth surface of the other gear.

7. A gear product according to claim 1, wherein

said crowning is formed at an upper end part of an upper side tooth surface and a lower end part of a lower side tooth surface of one gear.

8. A gear product according to claim 1, wherein

said crowning is formed at upper and lower end parts of an upper side tooth surface and a lower end part of a lower side tooth surface of one gear and

said crowning is formed at said upper end part of said upper side tooth surface and said lower end part of said lower side tooth surface of the other gear.

9. A gear product according to claim 1, wherein

said crowning is formed at a lower end part of an upper side tooth surface and an upper end part of a lower side tooth surface of one gear.

10. A gear product according to claim 1, wherein

said crowning is formed at a lower end part of an upper side tooth surface and an upper end part of a lower side tooth surface of one gear and

said crowning is formed at said lower end part of said upper side tooth surface and said upper end part of said lower side tooth surface of the other gear.

11. A gear product having a plurality of tooth formed at a predetermined pitch on an outer peripheral surface of a disc-form body thereof, wherein

tooth forms of all teeth are unified to one pattern selected from a plurality of pattern in which a crowning is formed at at least one of four parts of every both ends on each tooth surface of said teeth and said crowning is not formed at the other of said four parts thereof.

12. A gear product according to claim 11, wherein

said selected pattern is one of fourteen patterns comprising four patterns in which said crowning is formed at one of an upper end part or lower end part of an upper inclined surface, and an upper end part or a lower end part of a lower inclined surface,

six patterns in which said crownings are formed at two parts such as said upper end part and said lower end part of said upper inclined surface, said upper end part of said upper inclined surface and said upper end part of said lower inclined surface, said upper end part of said upper inclined surface and said lower end part of said lower inclined surface, said lower end part of said upper inclined surface and said upper end part of said lower inclined surface, said lower end part of said upper inclined surface and said lower end part of said lower inclined surface, or said upper end part and lower end part of said lower inclined surface, and

four patterns in which said crownings are formed at three parts such as said upper end part and said lower end part of said upper inclined surface and said upper end part of said lower inclined surface, said upper end part and said lower end part of said upper inclined surface and said lower end part of said lower inclined surface, said upper end part of said upper inclined surface and said upper end part and said lower end part of said lower inclined surface, or said lower end part of said upper inclined surface and said upper end part and said lower end part of said lower inclined surface.

13. A gear product according to any one of claims 1-12, wherein

said plurality of tooth formed on said outer peripheral surface of said disc-form part thereof is a helical tooth.

14. A method for manufacturing a gear product having a plurality of tooth formed at a predetermined pitch on an outer peripheral surface of a disc-form body thereof, wherein

a crowning is formed at least at one end part of tooth surface of at least one of gears engaging each other.

15. A method for manufacturing a gear product according to claim 14, wherein

a tooth form having said crowning of a tooth formed on said outer peripheral surface is formed by cutting.

16. A method for manufacturing a gear product according to claim 14, wherein

a tooth form having said crowning of a helical tooth formed on said outer peripheral surface is formed by upsetting on forging.

17. A method for manufacturing a gear product according to claim 14, wherein

a tooth form having said crowning of a helical tooth formed on said outer peripheral surface is formed by ironing on forging.

18. A method for manufacturing a gear product, wherein

a first molding having a plurality of tooth, having no crowning, formed at a predetermined pitch on an outer

peripheral surface of a disc-form body thereof is cut so that tooth forms of all teeth may be unified to a pattern selected from a plurality of pattern in which said crowning is formed at at least one of four parts of every both ends on each tooth surface of said teeth and said crowning is not formed at the other of said four parts thereof.

19. A method for manufacturing a gear product, wherein a first molding having a plurality of helical tooth, having no crowning, formed at a predetermined pitch on an outer peripheral surface of a disc-form body thereof is molded by upsetting so that said crowning can be formed at an upper part of an upper side tooth surface and a lower part of a lower side tooth surface among four parts of both ends parts of tooth surfaces of said all teeth.

20. A method for manufacturing a gear product, wherein a first molding having a plurality of helical tooth, having no crowning, formed at a predetermined pitch on an outer peripheral surface of a disc-form body thereof is molded by ironing so that said crowning may be formed at a lower part of an upper side tooth surface and an upper part of a lower side tooth surface among four parts of both end parts of tooth surfaces of said all teeth.